REMARKS

Summary of the Amendment

Upon entry of the above amendment, claims 8, 9, 11 and 16-19 will have been amended and claims 25-27 will have been added. Accordingly, claims 8-27 will be pending with claims 8, 19 and 25-27 being in independent form.

Summary of the Official Action

In the instant Office Action, the Examiner rejected claims 8-17 and 19-22 over the art of record. Additionally, the Examiner indicated that claims 18, 23 and 24 contain allowable subject matter and would be allowable if presented in independent form. By the present amendment and remarks, Applicant submits that the rejections have been overcome, and respectfully requests reconsideration of the outstanding Office Action and allowance of the present application.

Traversal of Rejection Under 35 U.S.C. § 102(b)

Applicant traverses the rejection of claims 8-17 and 19-22 under 35 U.S.C. § 102(b) as being anticipated by US patent 6,020,275 to STEVENSON et al.

The Examiner asserts that STEVENSON fairly discloses all the features recited in

these claims. Applicant respectfully traverses this rejection.

Applicant submits that STEVENSON fails to disclose, or even suggest, the invention as defined by at least claims 8 and 19. Notwithstanding the Office Action assertions as to what this document discloses, Applicant submits that this document lacks, inter alia, fixing threads arranged to join said warp and weft threads, said fixing threads being applied by warp knitting to form thread meshes, said thread meshes being arranged to extend around said warp threads over an entire length of said warp threads and around said weft threads in regions in which said warp threads and weft threads intersect, and in said regions in which said warp threads and said weft threads intersect, lengths of said thread meshes are shorter than in regions between intersect regions, as recited in independent claim 8, and inter alia, warp knitting fixing threads to join the warp and weft threads, whereby thread meshes are formed, wherein the thread meshes are arranged to extend around the warp threads over an entire length of the warp threads and around the weft threads in regions in which the warp threads and weft threads intersect, and wherein, in the regions in which the warp threads and the weft threads intersect, lengths of the thread meshes are formed to be shorter than in regions between intersect regions, as recited in independent claim 19.

Applicant notes that STEVENSON discloses an open mesh textile structure which is formed from woven textile. The structure shown in Fig. 5 includes warp threads 320, weft threads 316 and leno yarns 336 and 338. However, it is clear from a fair reading of this

document that there is entirely no disclosure with regard to a mesh structure that utilizes *fixing threads arranged to join said warp and weft threads, said fixing threads being applied by warp knitting to form thread meshes, said thread meshes being arranged to extend around said warp threads over an entire length of said warp threads and around said weft threads in regions in which said warp threads and weft threads intersect, and in said regions in which said warp threads and said weft threads intersect, lengths of said thread meshes are shorter than in regions between intersect regions*, and/or *warp knitting fixing threads to join the warp and weft threads*, whereby thread meshes are formed, wherein *the thread meshes are arranged to extend around the warp threads over an entire length of the warp threads and around the weft threads in regions in which the warp threads and weft threads intersect, and wherein, in the regions in which the warp threads and the weft threads intersect, lengths of the thread meshes are formed to be shorter than in regions between intersect regions.*

A quick review of the figures of STEVEN will demonstrate that this document does not render Applicant's claims 8 and 19 anticipated. Fig. 1, for example, shows warp threads 20 and weft threads 16 which are interwoven at junctions 22. Clearly, no fixing threads are shown, much less, ones that have meshes and/or which are applied by warp knitting. Fig. 2 also shows warp threads 20 and weft threads 16 which are interwoven at junctions 32. Clearly, no fixing threads are shown, much less, ones that have meshes and/or which are applied by warp knitting. Fig. 3-3B similarly show warp threads 120 and weft threads 116

which are interwoven at junctions 132. Clearly, no fixing threads are shown, much less, ones that have meshes and/or which are applied by warp knitting. Fig. 4 shows warp threads 220 and weft threads 216 which are interwoven at junctions 232. A leno yarn 236 is woven at a diagonal. Clearly, a single leno yarn cannot properly be characterized as fixing threads, much less, ones that have meshes and/or which are applied by warp knitting. Fig. 5 shows warp threads 320 and weft threads 316 which are interwoven at junctions 332. Two leno yarns 336 and 338 are woven diagonally. Clearly, these leno yarns cannot properly be characterized as fixing threads having meshes and/or which are applied by warp knitting, much less, thread meshes that arranged to extend around said warp threads over an entire length of said warp threads and around said weft threads in regions in which said warp threads and weft threads intersect.

Applicant notes that STEVENSON discloses a bonded composite open mesh structural textile formed of <u>woven</u> textile with or without a half-cross or full-cross leno thread. On the other hand, the present invention relates to a textile mesh structure with warp threads and weft threads which are joined by <u>fixing threads applied by a warp-knitting technique</u>. The production techniques of these grids, and their resulting structure, are considerably different from each other.

The Examiner should note that a woven textile is produced on a shuttle loom where shanks create weaving sheds between adjacent warp threads. The shuttle is driven through

the weaving shed in order to insert the weft yarn. A leno thread is a special warp yarn which runs along the shuttle loom together with the other warp threads of the chain. The leno threads cross over one (see Figs. 2 and 3, 3A, 3B of STEVENSON) or several adjacent warp threads (see Figs. 4 and 5 of STEVENSON) within one weaving shed (see Fig. 3B) or over several weaving sheds (see Figs. 2, 3, 3A, 4, 5 of STEVENSON). Weaving machines are relatively complex and imply low production speed of the textile material.

As discussed above, the invention, on the other hand, relates to a mesh structure with weft threads and warp threads joined by fixing threads which are applied by warp-knitting. To facilitate the Examiner's understanding, Applicant is attaching hereto a brochure entitled "The Karl Mayer Guide to Technical Textiles" by the company Karl Mayer, a renowned producer of warp-knitting machines. As the Examiner will note, the brochure explains the production process of a warp-knitted material. There, the Examiner will note that there are separate beams for the warp threads and the fixing threads. The weft threads are simply laid over a set of parallel warp threads. The fixing threads are pulled around the load-bearing warp and weft threads of the mesh structure by means of needles. Thus, a warp-knitting machine does not comprise any shank for creating a weaving shed.

Accordingly, it is submitted that, contrary to the Examiner's assertions, STEVENSON does not disclose fixing threads for joining the crossing threads of the mesh structure. The effect or bulking yarns mentioned by STEVENSON are used as warp yarns or as weft yarns

or as leno yearns to provide the desired bulk in the textile. The structural integrity of the mesh results from the interweaving action between the warp yarns and weft yarns and - where applicable - leno yarns. Thus, the effect of bulking yarns are not necessary for the structural integrity of the textile, as opposed to the fixing yarns of the invention. Moreover, it is clear that the bulking yarn cannot be equated with the fixing threads of the present invention. As explained above, the bulking yarn may be in the chain or used as weft yarns or leno yarns according to STEVENSON. On the other hand, the fixing threads of the present invention are clearly defined as being applied by warp-knitting to form thread meshes which extend around the warp threads and weft threads. The Examiner must acknowledge that the claims require that the fixing threads be applied by warp-knitting to form thread meshes which extend around the warp threads and weft threads.

Applicant notes that the zig-zag thread of the present invention (i.e., the joining yarn 10 recited in dependent claims) is a fourth component of the grid which links the fixing threads of each group of warp threads among each other in order to prevent lateral displacement. This fourth component is independent of the warp threads, the weft threads, and the thread meshes created by the fixing threads.

The Examiner has opined that Figs. 4 and 5 show fixing threads that are shorter than the warp and weft threads. Applicant respectfully disagrees. Figs. 4 and 5 of STEVENSON do not show that the fixing threads are shorter than the warp threads or weft threads. To the

contrary, it is clear that fixing threads, warp threads and weft threads in Figs. 4 and 5 of STEVENSON are continuous, endless filament yarns. Thus, no difference of length can be observed (assuming that fixing threads are present in the Figures of STEVENSON, which Applicant submits they are not). Additionally, Applicant submits that it is simply not possible to note any variation of mesh length in the Figures of STEVENSON because this document does not disclose the formation of any thread meshes. Clearly, the threads in STEVENSON are interwoven. This document merely discloses weaving sheds with crossing weft yarns and sometimes a twisted structure (leno threads). There are no discernable thread meshes. Moreover, Applicant submits that none of the threads form any thread meshes known from warp-knitting production technology.

Applicant emphasizes that at least the following features of independent claims 8 and 19 are clearly not disclosed by STEVENSON:

fixing threads which join the warp and weft threads;

fixing threads that are applied by warp-knitting to form thread meshes;

thread meshes arranged to extend around the warp threads over an entire length of the warp threads and around the weft threads in a region in which the warp threads and weft threads intersect;

in the regions in which the warp threads and said weft threads intersect, the lengths of the thread meshes are shorter than in the regions between the intersection regions.

By way of background, the invention provides for the number of meshes of the fixing threads to be greater in the crossing regions where the warp and weft threads are joined by the fixing threads than in the spaces between the crossing regions. This arrangement simply cannot be implemented by weaving technology. Instead, it is a new and inventive technical feature exclusively applicable to mesh-linked (warp-knitted) structures. Due to the low number of thread meshes (long thread meshes) in between the crossing regions, only a low quantity of fixing thread is used. The long meshes are usually achieved by increasing the progression speed of the warp threads over the warp-knitting machines. This increases production speed. The frequency of the needles that form the meshes can be kept constant. In order to provide good bonding of the warp threads and weft threads, the progression speed of the warp threads can be slowed down in the crossing section so that a large number of meshes (short meshes) is defined. The textile arrangement of STEVENSON simply cannot be compared to that of the present invention. Moreover, the technique proposed by the invention simply cannot be used on a shuttle loom and will not provide similar advantages in a woven textile.

Applicant notes that, for an anticipation rejection under 35 U.S.C. § 102 to be proper, each element of the claim in question must be disclosed in a single document, and if the document relied upon does not do so, then the rejection must be withdrawn.

Because the above-noted document fails to disclose at least the above mentioned

features as recited in at least amended claims 8 and 19, Applicant submits that this document does not disclose all the claimed features recited in at least amended claims 8 and 19.

Furthermore, Applicant submits that claims 9-18 and 20-24 are allowable at least for the reason that these claims depend from an allowable base claim and because these claims recite additional features that further define the present invention. In particular, Applicant submits that no proper reading of STEVENSON discloses or suggests, in combination: that said textile mesh structure is structured as a geomesh as recited in claim 9; that said lengths of said thread meshes in said intersect regions are at least 50% shorter than said lengths of the meshes between said intersect regions as recited in claim 10; that in said intersect regions, said lengths of said thread meshes are structured and arranged such that a mesh is associated with each weft thread as recited in claim 11; that said weft threads are arranged in weft thread groups comprising a plurality of weft threads, and said lengths of said thread meshes are structured and arranged such that a mesh is associated with each weft thread of said weft thread group as recited in claim 12; that a fixing thread is associated with each warp thread to form a warp mesh as recited in claim 13; that said warp threads are arranged in warp groups including at least two warp threads positioned in closer relation to each other than to adjacent warp groups as recited in claim 14; that the structure further comprises a joining thread arranged in a zig-zag configuration to prevent lateral displacement of said warp threads of said warp group as recited in claim 15; that each fixing thread of said warp group

is associated with each warp thread as recited in claim 16; that the structure further comprises joining threads extending in a zig-zag configuration to prevent lateral displacement of said fixing threads as recited in claim 17; that the structure further comprises a non-woven material layer, wherein one of joining threads and said fixing threads are one of knitted on applied by Raschel knitting to join said warp and said weft threads to said non-woven material layer as recited in claim 18; that warp threads and the weft threads are arranged one of individually and in groups, such that, spacing between threads in a group is smaller than spacing between adjacent groups as recited in claim 20; that the process further comprises arranging a joining thread in a zig-zag configuration to prevent lateral displacement of the warp threads of a warp group as recited in claim 21; that the process further comprises arranging a joining thread in a zig-zag configuration to prevent lateral displacement of the fixing threads as recited in claim 22; that the process further comprises joining the warp and weft threads to a non-woven material layer as recited in claim 23; and that the joining includes one of knitting on and applying by Raschel knitting as recited in claim 24.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the rejection of the above-noted claims under 35 U.S.C. § 102(b).

New Claims are also Allowable

Applicant also submits that newly submitted claims 25-27 are also patentable over the

art of record.

In particular, Applicant submits that claims 25 and 26 generally recite the combination of features of claims 18 and 23 which were indicated by the Examiner to contain allowable subject matter. Moreover, Applicant submits that no proper reading of STEVENSON discloses or even suggests inter alia, fixing threads joining said warp and weft threads, each fixing thread extends around each warp thread over an entire length of each warp thread and around each weft thread in regions in which said warp threads and weft threads intersect, wherein said fixing threads are applied by warp knitting to form thread meshes along each warp thread and around each weft thread in regions in which said warp threads and weft threads intersect, in regions in which said warp threads and said weft threads intersect, lengths of the thread meshes are shorter than in regions between the regions in which said warp threads and said weft threads intersect, as recited in independent claim 27.

Accordingly, Applicant respectfully requests consideration of these claims and further requests that the above-noted claims be indicated as allowable.

Comments on Reasons for Allowance

In response to the Statement of Reasons for Allowance set forth in the Office Action, Applicant wishes to clarify the record with respect to the basis for the patentability of the indicated claims in the present application. In this regard, while Applicant does not disagree

with the Examiner's indication that certain identified features are not disclosed by the references, Applicant submits that the claims in the present applicant recite a combination of features, and that the basis for patentability of these claims is based on the totality of the recited features.

CONCLUSION

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicant's invention, as recited in each of the pending claims. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

The Commissioner is hereby authorized to refund excess payments and charge any additional fee necessary to have this paper entered to Deposit Account No. 19-0089.

P21437.A06

Should there be any questions, the Examiner is invited to contact the undersigned at the below listed number.

Respectfully submitted,
Ulrich Von FRANSECKY

Reg. No. 45,294

Neil F. Greenblum
Reg. No. 28,394

July 10, 2003
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191

Attachment: Brochure entitled "The Karl Mayer Guide to Technical Textiles" by the company Karl Mayer